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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,154	09/08/2003	Mark L. Burgener	PER-005-PAP	5658

7590 01/11/2010
JAQUEZ & ASSOCIATES
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6265 Greenwich Drive
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EXAMINER	
ENGLUND, TERRY LEE	
ART UNIT	PAPER NUMBER
2816	
DATE MAILED: 01/11/2010	

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 413 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 413 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.



Notice of Allowability

Application No.

10/658,154

Examiner

Terry L. Englund

Applicant(s)

BURGENER ET AL.

Art Unit

2816

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt (Dec 7, 2009) and Interviews (Dec 17-18, 2009).
2. ☒ The allowed claim(s) is/are 3-8, 10, 11, 15-27, 34-42, 46, 48-53, 55-67 and 69-71 (now renumbered for printing purposes).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20091217; 20091218.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 20081209, 20090604 & 20091123).

DETAILED ACTION

Response to Amendments/Interviews/IDSs

The proposed amendment (submitted on Nov 13, 2009), formal amendment (submitted on Dec 7, 2009); telephone interviews (e.g. on Dec 17, Dec 18, and Dec 29, 2009); and IDSs (submitted on Dec 9, 2008, Jun 4, 2009 and Nov 23, 2009) have all been reviewed, and/or taken into consideration, with the following results:

After reconsidering the drawing objection cited on pages 4-5 of the previous (Final) Office Action, that objection has been withdrawn. One of ordinary skill in the art understands that a ring oscillator has an odd number of stages, and this number would not be limited to only three stages as shown in the applicants' own Fig. 5.

The proposed amendment submitted on Nov 13, 2009 was in response to an interview on Oct 8, 2009. Several oversights were then discussed over the telephone with the applicants' representative, and a formal amendment addressing those concerns was submitted on Dec 7, 2009.

The cancellation of claims 1-2, 9, 12-14, 28-33, 43 and 68 rendered their respective objection(s), and/or rejection(s), moot.

The objections to claim 19, described on pages 5-6 of the previous Office Action, have been withdrawn. One of ordinary skill in the art would understand what the claim language means.

The amended claims overcame the rejections of claims 3-8, 15-17, 20, and 34-41 under 35 U.S.C. 112 as described on pages 6-7 of the previous Office Action. Therefore, those rejections have been withdrawn.

The amended claims, and/or the applicants' arguments/comments (within previous responses and during telephone interviews) overcame all of the prior art rejections, with respect to the remaining active claims, under 35 U.S.C. 103(a) as described on pages 8-34 of the previous Office Action. Therefore, the following rejections have been withdrawn: 1) claims 18-19, 49 and 70-71, with respect to Imamiya/ Pfiffner; 2) claims 3-4, 10, 16-17, 36-41, 48 and 69, with respect to Imamiya/Ito et al.; 3) claims 5-8, 15, 34-35, 46, 49 and 55-59, with respect to Imamiya/Ito et al.; 4) claims 20 and 22-23, with respect to Imamiya/Pfiffner/Ito et al.; 5) claims 50-51 and 53, with respect to Imamiya/Pfiffner/Clark; 6) claims 24-25, 27, 60-61 and 66-67, with respect to Imamiya/Yamashiro; 7) claims 4, 10, 16-17, 36-41 and 69, with respect to Forbes et al./Ito et al.; 8) Claims 3-4, 10, 16, 48, 50-51, 53, 57-58 and 69, with respect to Tasdighi et al./Yamauchi; 9) claim 49, with respect to Tasdighi et al./Yamauchi/Pfiffner; and 10) claims 50-51 and 53, with respect to Imamiya/Ito et al./Yamashiro/Clark. None of these references clearly shows or discloses the use of capacitive coupling with respect to a "substantially sine-like" signal and a charge pump type circuit, as understood from the claimed limitations, and/or the applicants' arguments/comments/discussions.

The references cited on the Nov 23, 2009 IDS were reviewed and considered. Figs. 3(a)-(c) of Japanese reference 11-252900 were of special interest. Fig. 3(c) shows transfer capacitor 36 that is charged through switches 34 and 35, and the capacitor's charge is boosted and transferred to output 33 through those same switches in their alternate positions. Each of switches 34 and 35 corresponds to the detailed switch part shown in Fig. 3(a), which closely corresponds to the active switches shown in the applicants' own Fig. 6. However, Fig. 4 of the Japanese reference clearly shows the controlling clock signal has square waves (i.e. digital logic

with only highs and lows), wherein it is understood that the applicants' invention relies on "substantially sine-like" signals as clarified by the applicants' numerous arguments/comments previously submitted, and/or previous discussions during interviews. The other reference cited on the IDS shows/discloses a current starved/limited type ring oscillator, but its waveforms are shown as square waves, or having a trapezoidal shape, wherein neither waveform is considered "substantially sine-like" as previously admitted by the applicants.

The Japanese reference was discussed/considered in some detail during an interview on Dec 17, 2009, and discussed/considered again during an interview on Dec 18, 2009. Also during the Dec 18th interview. Various other references showing a charge pump controlled by a ring oscillator, especially where the ring oscillator had features that would make it current starved/limited, were discussed. However, none of the reference clearly shows or discloses what the applicants' consider a "substantially sine-like" signal.

The references cited on the IDS forms submitted on Dec 9, 2008 and Jun 4, 2009 were also reviewed and considered. None the them clearly shows or discloses what is considered allowable material as described later under the appropriate section. [Note: The Dec 9, 2008 was modified to remove two redundant references (i.e. 6,429,723 by Hastings and 6,906,575 by Tanaka), and more correctly identify the patentee/applicant. This IDS was received after the previous (Final) Office Action had been mailed.]

There are no known objections or rejections remaining within the present application.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

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None of the prior art references reviewed and considered shows or discloses the charge pump apparatus as cited within independent apparatus claims 3-6, 10-11, 15, 18, 21 and 24; or the method of generating an output supply as cited within independent method claims 34, 42, 46, 49, 52, 56 and 60. More specifically, none of the references clearly shows or discloses a charge pump apparatus that comprises: 1) "capacitive coupling circuitry" as cited within claim 3; 2) a "capacitive coupling circuit" as cited within claims 4-5, 24 (upon which claims 25-27 depend) and 46 (upon which claims 48 and 69 depend); 3) "corresponding capacitive coupling circuits" as cited within claim 6, upon which claims 7-8 depend; 4) the "capacitively coupling" as cited within claims 10 and 34, upon which claims 35-41 depend; 5) a second control node AC impedance at least twice the first control node AC impedance as cited within claim 11; 6) the "one or more capacitive coupling networks" as cited within claim 15, upon which claims 16-17 depend; 7) the clock output being "coupled capacitively" as cited within claim 18 (upon which claims 19-20, 22-23 and 70 depend) and 56; 8) a second device area that is greater than double the first device area as cited within claim 21; 9) a control node AC impedance of the discharge output TCCS is at least double a control node AC impedance of the discharge common TCCS as cited within claim 42; 10) the clock output being "capacitively coupled" as cited within claims 49 (upon which claims 50-51, 55, 57-59 and 71 depend) and 56; 11) a control node AC impedance of the second TC discharging switch is at least twice as large as a control node AC impedance of the first discharging switch as cited within claim 52, upon which claim 53 depends; and 12) the first and second "capacitive coupling" networks as cited within claim 60, upon which claims 61-67 depend. Since there is no motivation to modify or combine any prior art reference(s) to ensure all of the limitations within any of the independent claims are met, the

claims are deemed patentably distinct over the prior art of record. [Note: It is now better understood from previous arguments, comments and discussions from/with the applicants/representative that the capacitive related coupling limitations, cited within most of the independent claims (i.e. claims 3-6, 10, 15, 18, 24, 34, 46, 49, 56 and 60) are due to the clock output being "substantially sine-like" (e.g. claims 15, 20 and 34 clearly cite "the capacitive coupling necessitates the charge pump clock output to be substantially sine-like", "the capacitive coupling of the charge pump clock output necessitates that the charge pump clock output be substantially sine-like", and "capacitively coupling...thereby necessitating that the first charge pump clock output be substantially sine-like", respectively). For example, the previous arguments, comments and/or discussions provided by the applicants, and/or their representative, have helped to clarify that "sine-like" signals do not include signals such as square waves, or trapezoidal type waveforms, as admitted by the applicants.

Claims 3-8, 10-11, 15-27, 34-42, 46, 48-53, 55-67 and 69-71 are allowed, and have been renumbered as 1-3, 5-6, 4, 7-14, 18, 15-16, 19-30, 32-34, 36-38, 43-44, 39, 45, 40-42, 46-53, 35, 17 and 31, respectively for printing purposes. The renumbering takes the cancellation of claims 1-2, 9, 12-14, 28-33, 43-45, 47, 54 and 68 into account, and regroups related claims closer together (e.g. claims 19-20, 22-23 and 70 all depend on independent claim 18).

Prior Art

The prior art references on the accompanying PTO-892 are cited for interest and documentation purposes only. Fig. 4 of Kajimoto shows a voltage switching part (comprising two capacitors, two resistors and two MOS transistors) that closely corresponds to: 1) the active switches shown in the applicants' own Fig. 6 (e.g. see 618,622,626,630,602,608 and 620,624,

628,632,604,610); and 2) the switch part (e.g. see C1,C2,R1,R2,Q1,Q2) shown in Fig. 3(a) of Japanese reference 11-252900 cited on the IDS submitted by the applicants on Nov 23, 2009. Fig. 1 of Shearon et al. shows transfer capacitors 11 and 12 coupled to active switches 13-16 and 17-20, respectively, which are controlled by clock outputs that are provided by generator 29 through coupling capacitors 25-28. However, none of these references clearly shows or discloses a clock output that is "substantially sine-like." In fact, each reference clearly shows square wave (i.e. digital logic type) signals (e.g. see Fig. 5 of Kajimoto; Fig. 4 of the Japanese reference; and Fig. 1 of Shearon et al.). Therefore, there is no motivation to use any of these references to meet the capacitively related coupling limitations cited within most of the present application's independent claims, wherein the claims' capacitive coupling is understood to be related to "substantially sine-like" signals as previously described above.

Any comments considered necessary by the applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln D. Donovan, can be reached on (571) 272-1988

The new central official fax number is (571) 273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T.L.E./

Examiner, Art Unit 2816

/Lincoln Donovan/

Supervisory Patent Examiner, Art Unit 2816

Notice of References Cited	Application/Control No. 10/658,154		Applicant(s)/Patent Under Reexamination BURGENER ET AL.	
	Examiner Terry L. Englund		Art Unit 2816	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,864,328	01-1999	Kajimoto, Koichi	345/95
*	B	US-6,249,446 B1	06-2001	Shearon et al.	363/60
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Interview Summary	Application No.	Applicant(s)	
	10/658,154	BURGENER ET AL.	
	Examiner	Art Unit	
	Terry L. Englund	2816	

All participants (applicant, applicant's representative, PTO personnel):

(1) Exmr Terry L. Englund. (3)_____.

(2) Applicants' Rep Martin J. Jaquez (Reg. No. 38,060). (4)_____.

Date of Interview: 18 December 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.

If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: JP 11-252900 (Figs. 3-4); and at least U.S. Patents 5,182,529 (Figs. 1 and 3-4), 5,208,557 (Figs. 4-5), 5,446,418 (Fig. 6), 6,020,781 (Figs. 1, 3 and 4), 6,064,275 (Figs. 5 and 7), and 6,429,632 (Figs. 2, 8 and 10-11).

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicants' representative and examiner discussed similarities of various prior art references with respect to the applicants' circuitry. Although various references show/disclose current starved/limiting related ring oscillators, it was agreed that none of these references clearly shows/discloses a "substantially sine-like" signal that is capacitively coupled to a charge pump type circuit.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Terry L. Englund/
Examiner, Art Unit 2816

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

